

科學教育

Volume 11, Pages 180-199, August 2001

彰化師範大學科學教育研究所

國小中年級學生聯結學校科學概念與日常生活之研究

A Linking Investigation, between School Science Concepts and Daily Life for
the Third Students

顏婉幸; 張惠博

中文摘要

本研究針對一班國小三年級學生，以行動研究的方式，探討學生將所學之學校科學概念聯結於日常生活中的情形，並討論其可能影響學生聯結的因素。本研究以質的研究法進行收集資料與分析，在將近四個月的行動研究過程中，研究者一方面收集學生對教學反應，一方面經由資料分析，幫助研究者擬定行動策略。研究分析過程以自我效化、同儕效化與學習者效化三方面來提高本研究的信賴度。研究發現，大部分的學生認為自己可以將所學的學校科學概念聯結於日常生活中，但是，即使經過教學後，學生自己將所學概念聯結至生活中仍有困難，而且原本的迷思概念仍存在，在研究者以口語或圖片引導下，學生面對生活情境的問題才能正確作答。研究者發現影響學生聯結的最大因素是「器材生活化」，但是並不表示所有的實驗都能產生聯結，只有吸引學生注意的實驗，學生聯結的比例會較高。其次，若進行「提出問題」策略時，倘能盡量以實物、或學生熟悉的例子進行說明，亦會影響學生的聯結。另外，教師的複習策略、家庭因素及先備概念亦會影響學生的聯結情形。文末，亦對教學、家長及未來的研究方向提出建議。

Abstract

This action research study focuses on the relationship between science concepts and the daily lives of third grade students. Instructional methods and other factors influencing this relationship provided the specific focus of the investigation. A qualitative research design was considered most appropriate for this investigation. Data sources were students' questionnaires, interviews, class assignments, reflections by the researcher, and classroom videotaping. Data were analyzed at the end of each class period. The result of the analysis would help researcher modify the teaching method for the next class. Self-validation, peer validation and learner validation were used to enhance the credibility of the study. The results indicated that most of the students thought they could connect science concepts and daily life by themselves. However, the researcher only found a few students who could actually make such connections. Most of students could not connect science concepts to daily life without the researcher's close guidance. By using of common materials existing in the daily life students' ability to link school science concepts to daily life could be improved. But, not all science experiments lend themselves to making good connections to daily life. If the researcher used those materials that were familiar to students to explain science concepts, then students' ability to make connections would be improved. Furthermore, the students' evaluation of the teacher, parents' attitudes, and students' prior knowledge are also important influential factors. Finally, implications for teaching strategy, parents' attitudes and future research will be discussed.